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A noteworthy *Dendrocalamus* (Poaceae: Bambusoideae) from Sumatra, Indonesia

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ABSTRACT. There are eight species of *Dendrocalamus* Nees (*Dendrocalamus asper* (Schult.) Backer, *D. bengkalisensis* Widjaja, *D. brandisii* (Munro) Kurz, *D. buar* Widjaja, *D. giganteus* Munro, *D. hait* Widjaja, *D. latiflorus* Munro, *D. membranaceus* Munro), wild or cultivated, already recorded for Sumatra. A new species is added to this list, *Dendrocalamus luteus* Damayanto & Widjaja, which grows wild in the Indonesia Ecosystem Restoration area in Sumatra's Jambi and South Sumatra Provinces. The new species is described, illustrated, and included in an identification key to all Sumatran *Dendrocalamus* species.

Keywords. Bambusoideae, *Dendrocalamus luteus*, new species, Sumatra

Introduction

According to Widjaja et al. (2014) Sumatra has the highest bamboo diversity in Indonesia, with at least 80 species, of which 32 species are endemic to the island. Three of these Sumatran endemic species are in the genus *Dendrocalamus* Nees (*Dendrocalamus bengkalisensis* Widjaja, *D. buar* Widjaja, *D. hait* Widjaja), another species of *Dendrocalamus* is newly described here, and five other species (*D. asper* (Schult.) Backer, *D. brandisii* (Munro) Kurz, *D. giganteus* Munro, *D. latiflorus* Munro, *D. membranaceus* Munro) are found only in cultivation.

An identification key to these nine *Dendrocalamus* spp. in Sumatra is presented.

Identification Key to *Dendrocalamus* species in Sumatra

1a Dominant primary branch axes at middle to distal parts of culm growing long and overarching onto neighbouring trees 2
1b. Dominant primary branch axes not especially elongated, never overarching onto neighbouring trees 5

2a. Leaf blade pubescent on lower surface 3
2b. Leaf blade glabrous on lower surface 4

3a Culm sheath apex with white wax and white to brown hairs at the base, culm sheath margin with white to brownish hairs; culm below nodes covered with brownish and whitish hairs and white waxiness; leaf midrib prominent and leaf base yellow ..... *D. luteus*
3b Culm sheath completely covered by white hairs and without wax, culm sheath margin glabrous; culm below nodes glabrous; leaf midrib not prominent and leaf base not yellow ..... *D. bengkalisensis*

4a Culm sheath auricles rim-like and crisped to blade base; ligules with 4–15 mm long bristles ..... *D. buar*
4b. Culm sheath auricles rounded lobes; ligules glabrous ..... *D. hait*

5a. Culm sheath auricles rim-like ..... *D. latiflorus*
5b. Culm sheath auricles small or rounded lobes, with wavy folds or crisped to blade base 6

6a. Lower culm of young culm with dense velvety brown hairs ..... *D. asper*
6b. Lower culm of young culm without velvety hairs 7

7a Culm sheath auricles crisped to the blade base; culm sheath ligules more than 1 mm high ..... *D. giganteus*
7b Culm sheath auricles small lobes with wavy folds; culm sheath ligules up to 0.5 mm high 8

8a Culm sheath auricle glabrous; blade usually shorter than half of the sheath length ..... *D. brandisii*
8b Culm sheath auricle with long bristles; blade usually exceeding half of the sheath length ..... *D. membranaceus*

Dendrocalamus luteus Damayanto & Widjaja, **sp. nov.**
Dendrocalamus luteus resembles *D. bengkalisensis* Widjaja (Widjaja, 1997) but differs in having white to brown culm sheath hairs, lobe-like leaf sheath auricles, and brownish and whitish hairs below the culm node (in contrast, *D. bengkalisensis* has consistently white culm sheath hairs, rounded 0.5–1 mm high leaf-sheath auricles, and is glabrous below the culm node). – TYPE: Sumatra, Jambi Province, Batanghari Subdistrict, Sei Bahar (now Muaro Jambi District, Sei Bahar Subdistrict), 8 July 2006 *Widjaja 8128* (holotype BO [one specimen over three sheets], accession No. BO–1934223 (shoot), BO–1934220 (leafy branch), BO–1934224 (inflorescence); isotype K). (Fig. 1)

Culm yellowish green to yellow; brownish and whitish hairs and white waxiness below the node when young, which disappears at maturity. Branch complement with a dominant primary branch which becomes very long (up to 5 m) and overarches onto neighbouring trees or even droops to the ground; culm and branch tips that droop to

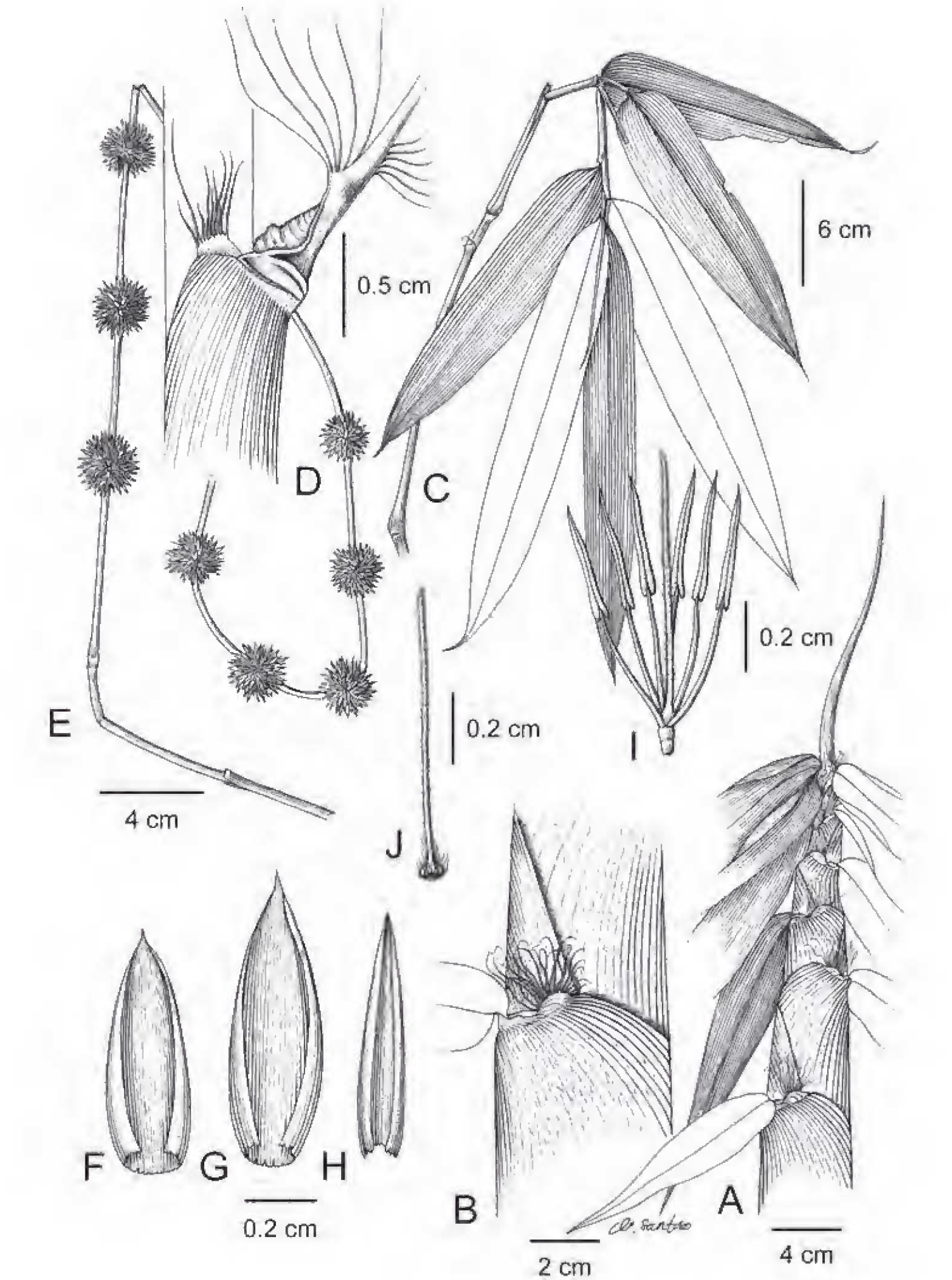

Fig. 1. *Dendrocalamus luteus* Damayanto & Widjaja. **A.** Culm shoot. **B.** Detail of upper part of culm sheath, showing rounded auricle with bristles. **C.** Leafy branch. **D.** Leaf sheath-blade junction, showing auricle with bristles. **E.** Inflorescence. **F.** Glume. **G.** Lemma. **H.** Palea. **I.** Pistil surrounded by six stamens with free filaments, without lodicules. **J.** Detail of pistil. Drawn by Wahyudi Santoso from *Widjaja 8128* (BO).

the ground occasionally rooting and forming a new clump. ***Culm sheaths*** 15.9–16.9 × 14.5–15.4 cm, orange in young shoots, covered by white wax on the upper part and with dense appressed white to brownish hairs at the base, sheath margin with white hairs along the apical part which are gradually replaced by brownish hairs (up to 0.3 cm long) toward the basal portion, eventually deciduous; auricles rounded, 0.4–0.5 cm high, bristles many and long, 2–2.8 cm long; ligules dentate, 0.2–0.4 cm high, bristles few, 0.4–0.6 cm long; blade spreading then reflexed, narrowly lanceolate, 10.7–12.4 × 2–2.7 cm. ***Leaf*** 23.2–25.3 × 2.3–4.5 cm, midrib base orange to yellow, pubescent on lower surface; auricles lobe-like, less than 0.5 mm, bristles 0.9–1.7 cm long; ligules entire, 1–2 mm high, glabrous. ***Inflorescences*** with 1–2 florets in each pseudospikelet, without a terminal vestigial flower; empty glumes 2; lemma 6–7 mm high; palea keeled at the apex, 8–8.5 mm long; stamens six, up to 4 mm long, anthers yellow with free filaments; ovary obovoid with thickened and hairy apex, produced into long hairy style 6–7 mm long and ending in a white plumose stigma.

Distribution. Sumatra, Jambi Province and South Sumatra Province, in the Indonesian Ecosystem Restoration area.

Ecology. This species forms the dominant growth in secondary forest along the road at around 60 m asl. Following logging of the forest in this area in 1991, this species has become abundant, with a suggestion from the local people that it is being dispersed by elephants.

Notes. The epithet *luteus* (meaning yellow) refers to the colour of the shoot, culm, base of the leaf blade and midrib, and anthers. Table 1 compares *D. luteus* to its closely related species.

Vernacular names and uses. Unknown.

Additional specimens examined. INDONESIA: **Jambi Province:** Batanghari District, Bajubang Subdistrict, Hutan Harapan, Jembatan Jengkol, 3 Apr 2013, *Wardi et al. BOHK 402* (BO); Batanghari District, Bajubang Subdistrict, Harapan Rainforest, 500 m before Jembatan Jengkol (Jengkol bridge) from office, 02°10′23″S 103°19′54″E, 2 Mar 2016, *Damayanto & Widjaja 02* (BO), *Damayanto & Widjaja 03* (BO), *Damayanto & Widjaja 04* (BO); Batanghari District, Bajubang Subdistrict, Harapan Rainforest, 1 km after Jembatan Jengkol from office, 02°11′17.5″S 103°20′22.7″E, 2 Mar 2016, *Damayanto & Widjaja 05* (BO). **South Sumatra Province:** Musi Banyuasin District, Batanghari Leko Subdistrict, Hutan Harapan, around Bato Nursery, 7 Apr 2013, *Wardi et al. BOHK 478* (BO); Musi Banyuasin District, Lubuk Bintialo Subdistrict, Harapan Rainforest, Merajang, 02°18′08.1″S 103°17′48.0″E, 3 Mar 2016, *Damayanto & Widjaja 12* (BO), *Damayanto & Widjaja 13* (BO), Musi Banyuasin District, Lubuk Bintialo Subdistrict, Harapan Rainforest, Near Danau Fokus 3, 02°18′08.1″S 103°17′48.6″E, 4 Mar 2016, *Damayanto & Widjaja 14* (BO).

Table 1. *Dendrocalamus luteus* Damayanto & Widjaja compared to closely related species.

	D. luteus	***D. bengkalisensis***	***D. buar***	***D. hait***
Shoot	Orange with white hairs and white wax on the upper sheath	Orange with white hairs or glabrous on the upper sheath, white wax not seen	Orange with white hairs and white wax on the upper sheath	Orange with white hairs on the upper sheath, white wax not seen
Culm colour	Yellowish green to yellow	Green	Green	Green
Culm sheath auricles	Rounded, 0.4–0.5 cm high, bristles 2–2.8 cm long	Rounded, 0.7–1 cm high, bristles 0.7–2.5 cm long	Rim like and crisped to blade base, bristles 0.9–1.8 cm long	Rounded, bristles 1.0–1.5 cm long
Culm sheath ligule	Dentate, 0.2–0.4 cm high, bristles few 0.4–0.6 cm long	Denticulate, up to 0.2 cm high, bristles up to 0.2 (–0.5) cm long	Denticulate, irregular, 0.7–1.9 cm high, bristles 0.4 –1.5 cm	Irregular, up to 1 cm, glabrous
Culm sheath blade	Spreading when young, reflexed when mature	Reflexed	Erect to reflexed	Erect to reflexed
Culm sheath margin	White hairs and replaced by brownish hairs	Absent	Absent	Absent
Lower leaf surface	Pubescent	Pubescent	Glabrous	Glabrous
Leaf sheath auricles	Lobe-like, bristles 0.9–1.7 cm long	Rounded lobes, bristles 0.9–1.7 cm long	Small to inconspicuous, bristles 0.1–0.2 cm long	Small to inconspicuous, bristles 0.4–0.6 (–1.2) cm long
Palea	Keeled	No data	Not keeled	Not keeled

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